

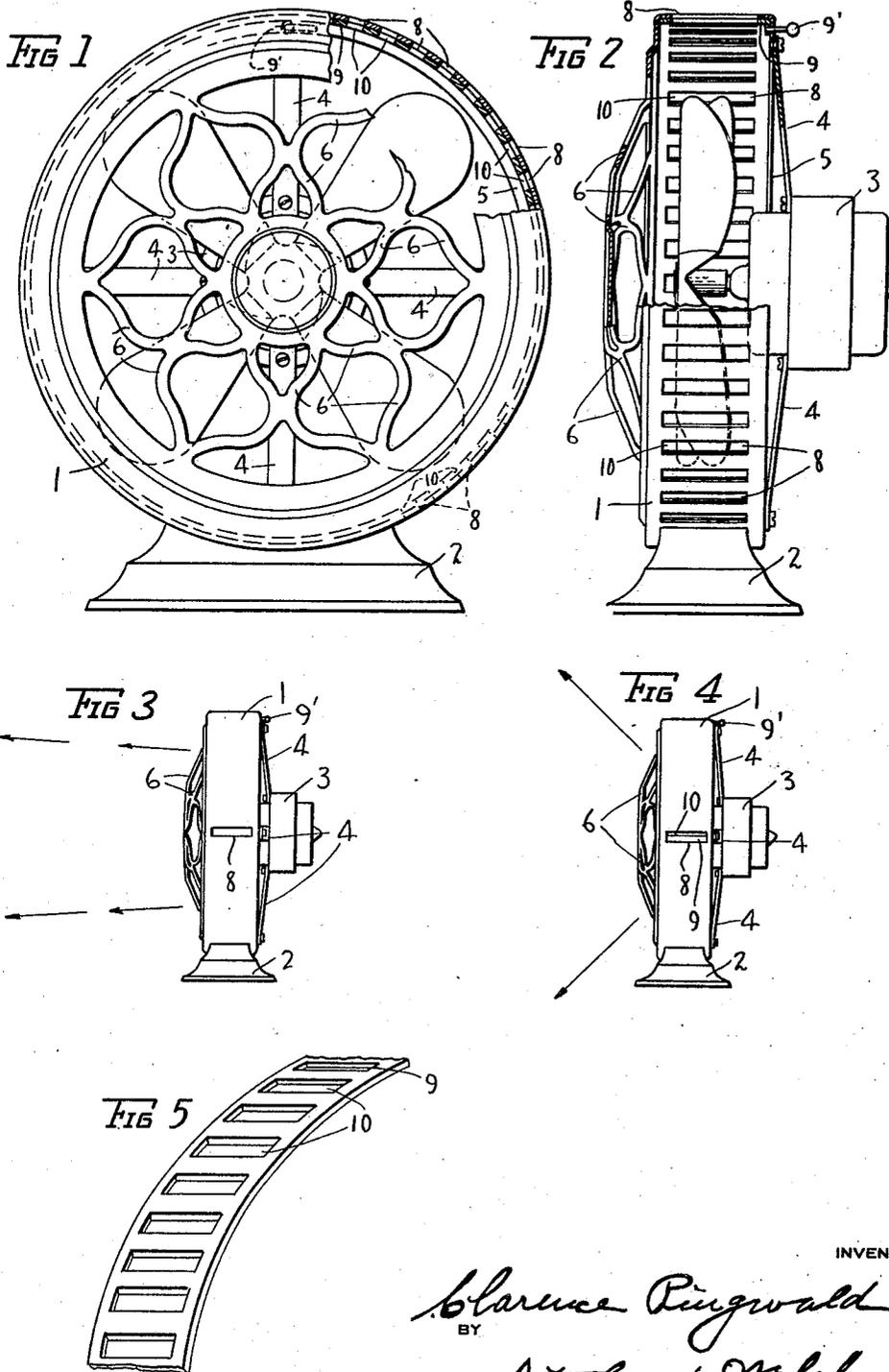
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ELECTRIC FAN

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UNITED STATES PATENT OFFICE

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ELECTRIC FAN

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This invention relates to electric fans for ventilating purposes.

The object of my invention is to provide a mounting for a fan which will serve the purpose of supporting the electric motor, as a guard for the fan and as means for controlling the air flow.

Another object of my invention is to provide a fan of this kind of a portable character having a base adapted to set upon a desk, table or other similar structure, the base directly supporting the fan and guard casing and the casing in turn supporting the motor and fan.

In the accompanying drawings:

Fig. 1 is a front elevation of a fan employed in my improvements with the mounting partly broken away and shown in section.

Fig. 2 is a view partly in side elevation and partly in vertical section.

Figs. 3 and 4 are side elevations on a reduced scale showing the effect on the air flow by the improved controlling device for the air.

Fig. 5 is an enlarged fragmentary view in perspective of the air controlling device.

Referring to the drawings, 1 is a cylindrical casing open at the front and rear provided with a base 2 which is secured thereto in any suitable manner. This casing supports the fan motor 3 through a series of radially extending arms 4 which are connected with the frame of the motor and also with an inturned flange 5 on the rear side of the casing. The forward side of the casing is provided with a series of bars 6 arranged in artistic fashion which cooperate with the casing to form a guard for the fan. The casing and its inturned flange 5 as well as the bars 6 are all preferably formed from an integral piece of sheet metal.

In the operation of fans having blades of the character shown which are unconfined, the air is discharged from the fan in the approximate form of a cone whose apex is near the center of the fan on the discharge side thereof and whose axis is coincident with the axis of rotation of the fan. In this case the air which replaces the misplaced air flows

toward the fan from the rear or motor side and also inwardly toward the center of the fan in a direction perpendicular to the axis thereof, the major percentage of the air moving in the last named direction. While this form of discharge is effective for ventilating a comparatively wide area, it is desirable in some cases to discharge the air in a more direct manner, as for instance where the fan is employed for directing a blast of air toward a desk from a point somewhat removed from the desk. It has been found that if means are employed to control the inflow of air in either or both of the two named points, the character of the discharge will be altered, the preferable and more practical way being to provide means for dampening the flow of air toward the center of the fan in a direction perpendicular to the axis thereof.

In the cylindrical side of the casing preferably about the entire periphery thereof excepting at the place where the base is connected are formed a series of openings 8, each preferably substantially rectangular in area with the longer dimension parallel to the axis of the fan. A cylindrical strip 9 having a series of similar openings 10 is rotatably secured on the inner surface of the cylindrical side of the casing which may have a knob 9' attached thereto and projecting through a slotted opening in the flange 5 for the purpose of rotating the same. The opening 10 may be in complete registry with the opening 8 allowing a maximum flow of air through the openings or the opening 8 may be closed whereby all of the air circulated must flow into the fan from the rear. The effect of adjusting the strip to provide a maximum opening through the periphery of the casing is to discharge the air as indicated by the arrows in Fig. 3 so that a blast of air may be directed to a given point. On the other hand if the strip is adjusted to completely close the opening a maximum diffusion or distribution of the air over a wide area is secured as shown by the arrows in Fig. 4. Any desired distribution of the discharged air between the minimum and maximum points illustrated may be secured by proper adjustment of the strip 9.

By this arrangement it will be seen that it is possible to secure variations of the discharge of the air from the extreme of a compact cylindrical mass to the extreme of a widely diffused conical flow. It will also be seen that in addition to this feature provision is made for guarding the fan and supporting the motor in a way which makes the device simple in construction, economical in manufacture and readily portable.

Having thus described my invention, I claim:

1. In a portable ventilating fan, a base adapted to set on a desk or similar structure, a cylindrical casing attached to said base and extending upwardly therefrom, an electric motor and fan supported rigidly by said casing with the fan housed by said casing, said casing being open at its ends and also having air admission openings about its periphery, and means for regulating the size of said peripheral openings.

2. In a portable ventilating fan, a base adapted to set on a desk or similar structure, a vertically disposed cylindrical casing attached to the base extending upwardly therefrom with its ends open, an electric motor, arms for supporting the motor rigidly from the casing with the motor disposed mainly outside of said casing, a fan attached to the motor shaft and housed by said casing, a grill-like member arranged on the opposite end of said casing, the periphery of said casing having a plurality of openings; and a damper rotatably mounted in said casing to regulate the size of said openings.

In testimony whereof, I have hereunto set my hand this 27th day of September 1929.

CLARENCE RINGWALD.

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